

Laws of Thermodynamics & Ecosystems

1.1.4 Describe how the first and second laws of thermodynamics are relevant to environmental systems

Energy never
created or destroyed
can only change

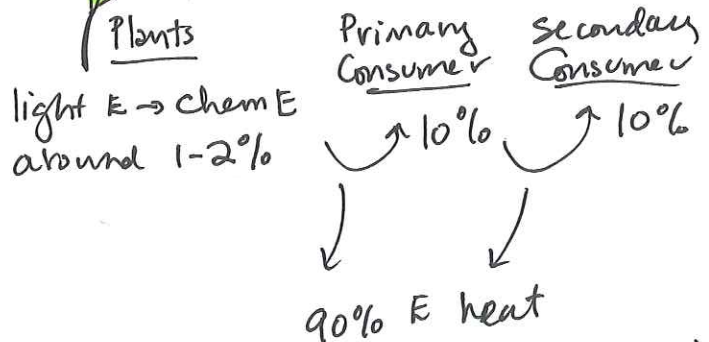
in a food chain
E enters via
photosynthesis →
Converted to stored E

passed on as one org.
eats another
light E → chem E → chem E
↓ ↓
Heat Energy

Energy goes from organized to
disorganized → E is never passed
along in its entirety

as E. conversions occur
some E is always
dissipated out of the
system. as waste heat.

↓
always a reduction of E
as you go up
trophic levels



So for a carnivore... ↓

$$0.02 \times 0.1 \times 0.1 = 0.0002\%$$

* main reason why
Food chains can't be too long.